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PATENT  
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Attorney Docket No.: DIVER1220-2  
(09010/046001)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:  
Jay M. Short

Application No.: 09/214,645

Filed: January 8, 1999

For: METHOD OF DNA SHUFFLING  
WITH POLYNUCLEOTIDES  
PRODUCED BY BLOCKING OR  
INTERRUPTING A SYNTHESIS OR  
AMPLIFICATION PROCESS

) Group Art Unit: Unassigned

)

) Examiner: Unassigned

)

)

CERTIFICATION UNDER 37 CFR '1.8

)

) I hereby certify that the documents referred to as enclosed herein  
are being deposited with the United States Postal Service as first  
class mail on October 20, 1999, in an envelope addressed to:  
Assistant Commissioner for Patents, Washington, D.C. 20231

*Margaret J. Pierce*  
Margaret J. Pierce  
10/20/99

Assistant Commissioner for Patents  
Washington, D.C. 20231

**TRANSMITTAL SHEET**

Sir:

Transmitted herewith for the above-identified application please find:

- (1) An Information Disclosure Statement
- (2) A Form PTO-1449;
- (3) Fifteen (15) U.S. Patent Documents;
- (4) Three (3) Foreign Patent Documents;
- (5) Fifteen (15) Other References; and
- (6) Postcard.

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Page 2

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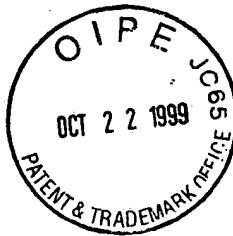
No fee is deemed necessary in connection with the filing of this Information Disclosure Statement. However, if any fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 07-1895. A duplicate copy of this Transmittal Letter is attached.

Respectfully submitted,



Lisa A. Haile, Ph.D.  
Registration No. 38,347  
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4365 Executive Drive, Suite 1600  
San Diego, CA 92121-2189



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Assistant Commissioner for Patents  
Washington, D.C. 20231

**INFORMATION DISCLOSURE STATEMENT**

Sir:

In accordance with 37 C.F.R. 1.97, enclosed are references relating to the above-identified application. For the convenience of the Examiner, these references are listed on the attached Form PTO-1449 and a copy of each is enclosed herewith.

It is respectfully requested that these references be considered in the examination of this application and their consideration be made of written record in the application file.

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Page 2

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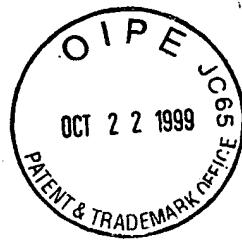


Dated: October 20, 1999

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 Page 3



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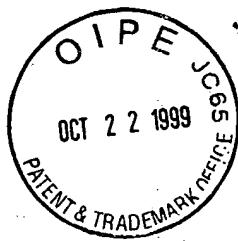
### U.S. PATENT DOCUMENTS

EXAM. INITIALS	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
	4683202	7/28/87				
	4800159	01/24/89				
	4965188	10/23/90				
	5176995	01/05/93				
	5187083	02/16/93				
	5234824	08/10/93				
	5333675	08/02/94				
	5354656	10/11/94				
	5605793	02/25/97	Stemmer			
	5645988	07/08/97				
	5811238	09/22/98	Stemmer			
	5814476	09/29/98	Kauffman			
	5817483	10/06/98	Kauffman			
	5830721	11/03/98	Stemmer			
	5837458	11/17/98	Minshull			

### FOREIGN PATENT DOCUMENTS

EXAM. INITIALS	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION (YES/NO)
	WO91/16427	10/31/91	PCT			
	WO95/22625	08/24/95	PCT			
	WO97/35957	10/02/97	PCT			

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Page 4



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**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)**

		Stemmer, "Rapid evolution of a protein in vitro by DNA shuffling," <i>Nature</i> 8/4/94, Vol. 370, pp. 389-391
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		Crameri et al., "Construction and evolution of antibody-phage libraries by DNA shuffling," <i>Nature Medicine</i> , January 1996, Vol. 2, No. 1, pp. 100-102
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		Cadwell, "Randomization of Genes by PCR Mutagenesis," <i>Research</i> , 2:28-33 ©1992 by Cold Spring Harbor Laboratory
		Hermes, "Searching sequence space by definably random mutagenesis: Improving the catalytic potency of an enzyme," <i>Proc. Natl. Acad. Sci. USA</i> , Vol. 87, pp. 696-700
		Reidhaar-Olson, "Combinatorial cassette mutagenesis as a probe of the informational content of protein sequences," <i>Science</i> , Vol. 241, pp. 53-57
		Marks, "By-passing immunization: building high affinity human antibodies by chain shuffling," <i>Bio/Technology</i> , Vol. 10, pp. 779-783
		Stemmer, "Selection of an active single chain Fv antibody from a protein linker library prepared by enzymatic inverse PCR," <i>Biotechniques</i> , Vol. 14, No. 2, pp. 256-265
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